

Success Story: DIISR (Department of Innovation, Industry, Science and Research)

DIISR innovates on storage and shrinks power costs with IBM XIV Storage System

At a Glance: DIISR's XIV Solution



Customer	DIISR (Department of Innovation, Industry, Science and Research)
Industry	Government
Environment	Electronic document and records management systems and email archiving for 1,800 users.
XIV Systems	IBM XIV Storage System (partial rack)
Challenge	60 percent annual data growth and significant limitations on space and electrical power
Features used	Thin provisioning
Results	Reduced physical space use by two full racks
	Reduced power requirements by 10 kW, saving US\$45,000 annually
	Gained a low overall cost, features-rich, resilient, highly scalable storage solution

IBM XIV Storage System

Overview

The Department of Innovation, Industry, Science and Research (DIISR) in Australia strives to encourage the sustainable growth of industries by developing a national innovation system that drives knowledge creation, cutting-edge science and research, international competitiveness and greater productivity. The DIISR portfolio is accountable to the Australian Parliament, and encompasses a number of different institutes and departments.

The Core Policy Department of DIISR, which employs approximately 1,800 people, was experiencing the same rapid rates of growth in data volumes as other federal departments, with around 60 percent annual growth. Adding to the pressure on the existing storage area network (SAN) was the planned introduction of a new electronic document management system and an e-mail

archiving solution. These new requirements made it vital to find the means to significantly increase SAN capacity while ensuring the continued ability to scale adequately. A further challenge was the significant limitation on space and electrical power in the existing data centers, which restricted the amount of new hardware that could be installed.

“Our key selection criteria for the new storage environment were: the ability to scale rapidly within a small physical footprint, easy migration from the existing solution and easy ongoing management,” says Steve Stirling, General Manager, ICT Operations Branch, Department of Innovation, Industry, Science and Research. “The IBM XIV® Storage System met all of these requirements, and at a much lower cost than upgrading our existing SAN.”

Automatic redundancy

DIISR implemented a partial-rack IBM XIV Storage System with 42 TB of storage at its primary data center, and moved the most modern hardware from its existing SAN to its disaster recovery site. Data is replicated from the XIV cluster to the SAN, and is also backed up to tape.

The XIV solution is based on a grid of standard, off-the-shelf hardware components connected in any-to-any topology by means of massively paralleled Gigabit Ethernet, and contained within a single chassis. Its ground-breaking architecture delivers tier-one performance levels at a tier-two price point.

Data is automatically spread across the available disks, and all disks are mirrored to provide full redundancy. If an individual disk fails, the XIV system automatically rebuilds the mirror with a functioning

disk—providing rapid, autonomic self-healing, with no need for manual input from the IT team. A 1 TB disk can be fully rebuilt in 30 minutes or less, significantly reducing the risk of data loss and business disruption.

“Ensuring redundancy is a significant administrative overhead in a conventional SAN setup,” says Will Quodling, Manager, Infrastructure Operations, Department of Innovation, Industry, Science and Research. “With IBM XIV, it’s all automatic, so you don’t have to spend time setting up and maintaining RAID arrays. And when it comes to expanding the solution, we will be able to do that nondisruptively by adding XIV modules while the system is running. That’s much easier than growing the previous SAN, which we had to shut down to add new storage capacity.”



IBM XIV Storage System

Power and space savings

The small environmental footprint of the IBM XIV solution is a significant advantage for DIISR. Its primary data center is only three years old, yet the exponential year-on-year growth in data volumes was already threatening to make the facility inadequate in size. Replacing the existing SAN with the XIV solution-enabled DIISR to save the equivalent of two full racks of space and 10 kW of power. One contributory factor is the XIV solution's use of SATA disks, which tend to be more energy-efficient than Fibre-Channel disks used in high-end SAN solutions.

"We were pushing against the limits of our data center in terms of power and space," says Steve Stirling. "XIV gave us back some much-needed headroom: we can get a maximum of 120 kW into the facility, so the 10 kW power saving is really significant. And on the financial side, it means we save 50,000 Australian dollars a year in electricity costs [approximately US\$45,000]. The current 42 TB capacity in the XIV should last us the next three years, and we can grow to 79 TB within a single rack."

In addition to being smaller and more efficient than the SAN it replaced, the XIV solution offered a lower purchase price and reduced total cost of ownership. Simply upgrading the old SAN

software licenses would have cost 75 percent of the total purchase price for XIV, and the required new hardware for the SAN option would have made it far more expensive.

"Beyond the purchase price, the XIV option saved us significant cost at the migration stage—it was much faster and easier to migrate to XIV than it would have been to migrate to a new SAN," says Will Quodling. "Our initial experience suggests that ongoing management costs will also be much lower with XIV: so much of the management is automated that we can refocus our technical resources on other areas of the infrastructure."

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Rapid and resilient

As an Australian government department, DIISR is bound by stringent rules and regulations around the availability, security and retention of data. The new XIV storage solution makes it easier and more cost-effective for DIISR to achieve compliance with these regulations, with features such as remote mirroring and snapshotting.

"The XIV solution enables us to perform full system backups extremely rapidly by taking snapshots," says Will Quodling. "This is not only useful for data protection; it also makes it much easier to provide test environments and new virtual machines to our large internal software development team."

A further benefit of migrating to XIV was that it enabled DIISR to introduce thin provisioning at low cost. This feature—standard on XIV—enables the IT team to create logical volumes that are larger than the total capacity of the existing hardware, ready for future data growth. As the environment grows, DIISR will be able to buy additional XIV modules or full units and merge them into the volume—without needing to shut down the whole environment and manually resize the volume.

"The XIV system gives us an enterprise-class storage solution that is easy to manage and cost-effective to run," says Steve Stirling. "With the current rapid growth in data volumes only likely to accelerate, the IBM solution will help us continue to provide a resilient, high-performance, low-cost storage solution for DIISR."



Benefits: Getting more with the XIV system

IBM XIV Storage System	Business Value to DIISR
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Ease of management	<ul style="list-style-type: none">Automated redundancy eliminates requirement to set up and manage RAID configurations
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Single-tier solution	<ul style="list-style-type: none">Delivers optimal blend of performance and cost-effectiveness
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Cost advantages	<ul style="list-style-type: none">Reduced power requirements by 10 kW, saving US\$45,000 annuallyFreed up two full racks of floor space in the data center
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For More Information

To learn more about the IBM XIV Storage System, contact your IBM representative or IBM Business Partner, or visit:

www.xivstorage.com

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